>MOVING LIFE

MANUALE D'USO E MANUTENZIONE
USE AND MAINTENANCE MANUAL
BEDIENUNGS - UND WARTUNGSANLEITUNG
MANUEL D'EMPLOI ET D'ENTRETIEN
MANUAL DE USO Y MANTENIMIENTO
MANUAL DO UTILIZADOR E MANUTENÇÃO

T-SKY (K691M)

Motoriduttore per porte da garage
Garage Door Opener
Garagentorantrieb
Automatisme pour Portes de Garage
Automatismo de Techo para Puertas de Garaje
Automatismo de Tecto para Portões de Garagem Residencial

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Italiano

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DATI TECNICI - TECHNICAL DATA - TECHNISCHE DATEN - DONNÉES TECHNIQUES - DATOS TÉCNICOS

TIPO - TYPE - TYP - TYPE - TIPO - TIPO	T-SKYKITC	T-SKYKITB	T-SKYKIT1C	T-SKYKIT1B
Sistema di trazione - Drive system Zug System Système de traction Sistema de tracción Sistema de tracção	catena - chain Ketten à chaîne por cadena por corrente	cinghia - belt Riemen à courroie por correa por correia	catena - chain Ketten à chaîne por cadena por corrente	cinghia - belt Riemen à courroie por correa por correia
Alimentazione - Power - Stromversorgung Alimentation - Alimentación - Alimentação	230 V AC (50 ÷ 60 Hz)			
Motore - Motor - Motor Moteur - Motor - Motor	24 V DC			
Corrente assorbita (a vuoto) - Absorbed current (no load) Stromaufnahme (ohne Last) - Courant absorbé (à vide) Corriente absorbida (en vacío) - Corrente absorvida (em vazio)	2,2 A		2,5 A	
Potenza assorbita (a vuoto) - Absorbed power (no load) Leistungsaufnahme (ohne Last) - Puissance absorbée (à vide) Potencia absorbida (en vacío) - Potência absorvida (em vazio)	80 W		110 W	
Velocità di manovra - Motor speed - Motorgeschwindigkeit Vitesse moteur - Velocidad Motor - Velocidade motor	0,185 m/s			
Grado di protezione - Protection level - Schutzart Degré de protection - Grado de protección - Grau de protecção	IP 40			
Corsa utile - Useful travel - Arbeitshub Course utile - Carrera útil - Percurso útil	2,65 m			
Ciclo di lavoro - Work cycle - Arbeitszyklus Cycle de travail - Ciclo de trabajo - Ciclo de trabalho	100%			
Temperatura di esercizio - Operating temperature Betriebstemperatur - Température de fonctionnement Temperatura de funcionamiento - Temperatura de funcionamento	-20°C ÷ 55°C			
Forza di trazione - Traction power - Zugkraft Traction - Fuerza de tracción - Força de tracção	650 N		1000 N	
Radio ricevente 433,92MHz - 433,92MHz radio receiver 433,92MHz Funkempfänger - Radio récepteur 433,92MHz Radiorreceptor 433,92MHz - Rádio receptor 433,92MHz	incorporata - built-in integriert - intégrée integrado - incorporado		incorporata - built-in integriert - intégrée integrado - incorporado	
Scheda carica batterie - Battery charge card Karte Batterieladung - Carte chargeur de batterie Tarjeta cargador de batería - Placa carga bateria	incorporata - built-in integriert - intégrée integrada - incorporado		incorporata - built-in integriert - intégrée integrada - incorporado	

NOTA: QUANDO IL SISTEMA IN 24 VDC È ALIMENTATO UNICAMENTE DALLA BATTERIA (IN CASO DI BLACK-OUT OPPURE IN ABBINAMENTO CON PANNELLO FOTOVOLTAICO), LE PRESTAZIONI ESPRESSE DAL MOTORIDUTTORE (FORZA E VELOCITÀ) SI RIDUCONO DEL 30% CA.

N.B. WHEN THE SYSTEM IS IN THE 24 V DC MODE AND IS POWERED BY THE BATTERY ONLY (IN THE EVENT OF A POWER FAILURE OR WHEN USED IN CONJUNCTION WITH A PHOTOVOLTAIC PANEL), THE GEAR MOTOR'S OUTPUT (POWER AND SPEED) IS REDUCED BY APPROXIMATELY 30% .

ANMERKUNG: WENN DAS 24 VDC SYSTEM NUR ÜBER BATTERIE GESPEIST IST (BEI STROMAUSFALL ODER IN KOMBINATION MIT EINEM PHOTOVOLTAICPANEEL), VERRINGERN SICH DIE LEISTUNGEN DES GETRIEBEMOTORS (KRAFT UND GESCHWINDIGKEIT) UM CA. 30%.

ATTENTION : QUAND LE SYSTÈME À 24 VCC EST ALIMENTÉ UNIQUEMENT PAR LA BATTERIE (EN CAS DE COUPURE DE COURANT OU BIEN EN ASSOCIATION AVEC UN PANNEAU PHOTOVOLTAÏQUE), LES PERFORMANCES DU MOTORÉDUCTEUR (FORCE ET VITESSE) DIMINUENT D'ENVIRON 30% .

NOTA: CUANDO EL SISTEMA DE 24 VDC ES ALIMENTADO ÚNICAMENTE POR LA BATERÍA (EN CASO DE CORTE DE CORRIENTE, O BIEN COMBINADO CON PANEL FOTOVOLTAICO), LAS PRESTACIONES DEL MOTORREDUCTOR (FUERZA Y VELOCIDAD) SE REDUCEN EN UN 30%.

NOTA: QUANDO O SISTEMA DE 24VDC É ALIMENTADO ÚNICAMENTE PELA BATERIA (EM CASO DE FALHA DE CORRENTE OU QUANDO USADO EM COMBINAÇÃO COM PAINEL FOTOVOLTÁICO) AS PRESTAÇÕES DO MOTOR (VELOCIDADE E FORÇA) REDUZEM-SE APROXIMADAMENTE EM 30%.

ENGLISH

1_ INSTALLATION WARNINGS

GENERAL SAFETY REQUIREMENTS

1) **Carefully read all instructions before installation, as they provide important instructions regarding the safety, installation, operation and maintenance. Incorrect installation or use of the product may lead to serious physical injury.**
2) Never leave packaging materials (plastic, polystyrene etc.) within the reach of children as they constitute a potential hazard.
3) Keep the instructions in a safe place for future consultation.
4) This product has been designed and constructed exclusively for the use specified in this documentation. Any other use not specified herein may impair product integrity and/or constitute a hazard.
5) TAU declines all liability for improper use or use other than as specified for this automation.
6) Never install the product in explosive atmospheres.
7) The mechanical elements must comply with the requirements as stated in the standards EN 12604 and EN 12605. For non European member states, in addition to the national reference standards, the above-mentioned standards must be observed to ensure an adequate level of safety.
8) TAU is not responsible for failure to observe Good Practice in construction of the doors to be power-operated, nor any deformations occurring during use.
9) To ensure the maximum safety, in consideration of the hazards that may arise during installation and use of T-SKY, the installation procedures must be performed in full compliance with the law, current standards and regulations. This chapter contains general warnings, while other important warnings are provided in chapters “Preliminary Checks” and “Commissioning”.

According to the most recent legislation, the installation of a power-operated door or gate must be in full observance of the standards envisaged by European Directive 98/37/EC (Machinery Directive) and in particular the standards: EN 12445; EN 12453 and EN 12635, which enable the declaration of presumed conformity.

10) Before installation, an assessment of the associated risks must be made, including a list of the essential safety requirements as envisaged in Appendix I of the Machinery Directive, specifying the relative solutions adopted. Note that the risk assessment is one of the documents included in the automation Technical documentation.
11) Check whether other devices are needed to complete the automation with T-SKY on the basis of the specific conditions of use and dangers present; take into account all risks of impact, crushing, shearing, dragging etc. and other hazards in general.
12) Installation must comply with all provisions of Standards EN 12453 and EN 12445. In non-EU member states, as well as national reference standards, the afore-mentioned standards should also be observed to guarantee an adequate level of safety.
13) Before performing any operations on the system, disconnect from the mains and detach the batteries.
14) On the automation power line, install a device for disconnection from the power mains with a gap between contacts equal to or greater than 3 mm. Use of a 6A thermal magnetic circuit breaker with multi-pole switch is recommended.
15) Check upline of the system that there is a residual current circuit breaker with a threshold of 0.03 A.
16) Ensure that the earthing system is to professional standards and connected to the metal section of the door.
17) The safety devices (standard EN 12978) enable the protection of danger areas from **risks associated with mechanical movements** such as crushing, dragging and shearing.
18) The use of at least one luminous indicator is recommended for each system, as well as a warning notice fixed suitably to the frame structure, in addition to the devices specified in point 18.
19) TAU declines all liability for the safety and efficient operation of the automation in the event of using system components not produced by TAU.
20) For maintenance, use exclusively original TAU parts.
21) Never modify components that are part of the automation system.
22) The automation may only be used after completing the commissioning procedure as specified in chapter 5 “Testing and commissioning”.
23) The installer must provide all information regarding manual operation of the system in the event of an emergency and supply the system User with the “User Guide” enclosed with the product.
24) Never allow children or other persons to stay in the vicinity of the product during operation.
25) Keep all radio controls or other pulse supplier device out of the reach of children to prevent inadvertent activation of the automation.
26) Transit below the door must occur exclusively when the automation is stationary.
27) The user must never attempt to repair or intervene directly on the product; always contact qualified personnel for assistance.
28) Before accessing internal terminals under the T-SKY cover, disconnect all power circuits. If the disconnect device is not in a visible location, affix a notice stating: “CAUTION: MAINTENANCE IN PROGRESS”.
29) Maintenance: at least every six months, make a general check of the system, with special reference to the efficiency of the safety devices (including, when envisaged, the operator thrust force) and release mechanisms.
30) **All actions not expressly envisaged in these instructions are strictly prohibited.**

All documentation related to the system should be kept inside or in the immediate vicinity of the control unit.

2_ PRODUCT DESCRIPTION AND INTENDED USE (fig. 1)

T-SKY is a range of gearmotors destined for the automation of sectional doors and, by means of the special accessory P-100BANT not supplied, spring or counterweight up-and-over doors, projecting and non-projecting.
2 solutions of T-SKY are available: one with a single track sliding guide (L= 3m – moving parts are already assembled at the factory) or in the 3-section version for assembly (moving parts need to be assembled by the installer).
The irreversible system guarantees mechanical blocking of the door when the motor is not operating, and therefore no lock is necessary; an internal and external manual release (optional) enable door manoeuvres in the event of a power failure or when out of service.
The buffer battery accessory P-200BATTSKY (optional) is also available, which enables certain manoeuvres in the event of a mains power failure.

The T-SKY automation has been designed and constructed for indoor use and to control vehicle access. Any other use is strictly prohibited.

1_ Base
2_ Cover
3_ Door
4_ Control unit
5_ Courtesy light
6_ Gear unit
7_ Sliding guide
8_ Drive carriage
9_ Door attachment bracket
10_ Front attachment
11_ Chain tensioner
12_ Rear attachment
13_ Release knob

2.1_ Application limits and dimensions (fig. 2)

All performance data of the products in the T-SKY range are provided in the table “Technical Data” are the only values that enable and ensure correct evaluation for use.
The structural features of T-SKY products make them suitable for use on sectional or up-and-over doors, within the limits as specified in the table.

Model	**SECTIONAL door**	
	Height	*Width*
T-SKY (guide P-100BINBELT/CHAIN)	2,5m	3,5m
T-SKY (guide P-100BINBELT3/CHAIN3)	2,5m	3,5m
T-SKY1 (guide P-100BINBELT/CHAIN)	2,5m	5m
T-SKY1 (guide P-100BINBELT3/CHAIN3)	2,5m	5m

Model	**UP-AND-OVER door non projecting (with accessory P-100BANT)**	
	Height	*Width*
T-SKY (guide P-100BINBELT/CHAIN)	2,2m	3m
T-SKY (guide P-100BINBELT3/CHAIN3)	2,2m	3m
T-SKY1 (guide P-100BINBELT/CHAIN)	2,2m	4m
T-SKY1 (guide P-100BINBELT3/CHAIN3)	2,2m	4m

Model	**UP-AND-OVER door projecting (with accessory P-100BANT)**	
	Height	*Width*
T-SKY (guide P-100BINBELT/CHAIN)	2,8m	3m
T-SKY (guide P-100BINBELT3/CHAIN3)	2,8m	3m
T-SKY1 (guide P-100BINBELT/CHAIN)	2,8m	4m
T-SKY1 (guide P-100BINBELT3/CHAIN3)	2,8m	4m

Note: if art. P-100PROC (or P-100PROB) is used, the heights stated in the tables may be increased by 1m.

The measurements stated in the tables are guideline only and serve as a general estimate. The effective suitability of T-SKY for the automation of a specific door depends on the degree of leaf balance, friction on the guides and other factors, including occasional events, such as wind pressure or the presence of ice, which may obstruct leaf movement.

2.2_ Type of system and cable sections (figs. 3-4-5)

1_ Gearmotor with built-in control
2_ Photocells
3_ Photocells on post
4_ Sensitive edge
5_ Flashing light and aerial
6_ Key-operated selector switch
7_ Pushbutton panel
8_ External release (optional)

a_ 4x0,5 mm²
b_ 2x0,5 mm² + RG58
c_ 2x0,5 mm²
d_ 3x0,5 mm²
e_ 3x0,5 mm²
f_ 4x0,5 mm²

3_ INSTALLATION

T-SKY must be installed by qualified personnel in compliance with current legislation, standards and regulations as well as the specifications in these instructions.

3.1_ Preliminary checks

Before installing T-SKY the following checks are required:

- Ensure that all material used is in perfect condition, suitable for use and compliant with standards.
- Ensure that the door structure is suitable for power-operation.
- Ensure that the door has the force and dimensions within the application limits as specified in paragraph 2.1.
- Ensure that the door complies with standards EN12604 and EN12605.
- During movement, the door must never invade public areas allocated for the transit of pedestrians or vehicles.
- During door travel, ensure that there are no points of marked friction, both during opening and closing.
- Ensure sufficient strength of the mechanical stops and check that there is no risk of the door derailing.
- Ensure that the door is adequately balanced, i.e. it should not move if left stationary in any position.
- Ensure that the fixing points of the various devices (photocells, pushbuttons etc.) are located in areas protected against the risk of impact, and that the fixing surfaces are sufficiently solid.
- Ensure that the minimum and maximum clearances are as specified in figures 6 and 7.
- Ensure that parts of the operator cannot come into contact with water or other liquids.
- Do not keep T-SKY components near sources of heat or expose to flames; these actions may damage or cause malfunctions, fire or hazardous situations.
- If the door is equipped with a pedestrian pass door, ensure that this does not obstruct normal door travel; if necessary fit a suitable interlock system.
- If the door to be automated is up-and-over, check value A of figure 8, i.e. the minimum distance between the upper edge of the guide and the maximum point reached by the upper edge of the door. **Otherwise T-SKY cannot be fitted.**
- Connect the T-SKY power plug to an electrical socket equipped with safety earthing.
- The electrical socket must be protected by an adequate thermal magnetic cut-out and residual current circuit breaker.

3.2_ Sliding guide assembly

If supplied with the sliding guide in 3 sections, these must be assembled as described below:

1_ Straighten the three tracks after inserting the butterfly bracket on the section (for ceiling mounting), as shown in fig. 9.
2_ Slide the joint to join the tracks (fig. 10) and secure using the screw (B fig. 10) suppied.
3_ Adjust the tension of the chain/belt by means of the chain tensioner nut (A fig. 10) until it is sufficiently taut.

Otherwise, if supplied with the pre-assembled guide, tension the chain/belt until it is sufficiently taut.

If the chain/belt is tensioned excessively, the motor will undergo excessive stress with a consequent increase in current absorption.

If the height of the door to be power-operated is greater than 2,5 m, the optional accessory 100PROC (for chain drive) or 100PROB (for belt drive) is required to extend the sliding guide by 1 m. To assemble, proceed as follows:

- *guide 100BINCHAIN3 – chain drive (100PROC)*

1_ Insert the additional 1-metre section inside its joint of 700 mm (fig. 11).
2_ Keep the drive carriage locked in place (A fig. 12) and slide the chain until the joint protrudes (B fig. 12).
3_ Add the additional section on the chain (fig. 13).
4_ Slide the chain until it is locked on the drive carriage (fig. 14).
5_ Insert the additional section in the casing (with joint) and join the four tracks as described above (figs. 9-10).
6_ Tension the chain by means of the nut (A fig. 15) until it is sufficiently taut.

If the chain/belt is tensioned excessively, the motor will undergo excessive stress with a consequent increase in current absorption.

ENGLISH

• *guide 100BINCHAIN – chain drive (100PROC)*

1_ Insert the additional 1-metre section inside its joint of 700 mm (fig. 11).
2_ Loosen the chain tension by means of the nut (A fig. 15) and remove the chain tensioner.
3_ Keep the drive carriage locked in place (A fig. 12) and slide the chain until the joint protrudes (B fig. 12).
4_ Add the additional section on the chain (fig. 13).
5_ Slide the chain until it is locked on the drive carriage (fig. 14).
6_ Insert the additional section of the casing (with joint) and join to the long track (fig. 16).
7_ Fit the chain tensioner and adjust tension until the chain is sufficiently taut.

If the chain/belt is tensioned excessively, the motor will undergo excessive stress with a consequent increase in current absorption.

• *guide 100BINBELT3 and 100BINBELT – belt drive (100PROB)*

If supplied with the track in three sections, these must be assembled as described at the start of this paragraph, after which the following operations are the same for both versions:

1_ Insert the additional 1-metre section inside its joint of 700 mm (fig. 11).
2_ Loosen the belt tension by means of the nut (A fig. 17).
3_ Keep the drive carriage locked in place (A fig. 18) and slide the belt until the joint protrudes (B fig. 18).
4_ After removing the fixing screws, extract the belt and remove from the sliding guide (fig. 19).
5_ Remove the rear attachment as shown in figure 20. This operation requires some strength; use a rubber mallet if required.
6_ Join the 1-metre extension to the track with its joint (fig. 21).
7_ Pass one end of the belt through the head section, as shown in fig. 22, and fix it to the joint with the screws and washers already present (fig. 23). Take care to ensure the correct position of the belt: it must be with the teeth facing inwards, straight without any twists.
8_ Assemble the gear unit as shown in figure 24. This operation requires some strength; use a rubber mallet if required.
9_ Pass the free end of the belt through the carriage, to the gear of the chain tensioner and then again through the carriage to the joint to establish the correct length. Take care to ensure the correct position of the belt: it must be with the teeth facing inwards, straight without any twists.
10_ Cut the belt to the set length and fix to the joint by means of the screws and washers already present (A fig. 25).
11_ Slide the belt until it is locked on the drive carriage (B fig. 25).
12_ Tension the belt by means of the nut (A fig. 26) until it is sufficiently taut.

If the chain/belt is tensioned excessively, the motor will undergo excessive stress with a consequent increase in current absorption.

3.3_ Fixing the gearmotor to the guide

1_ Join the gearmotor with the head of the guide, then secure by means of the 4 screws supplied as shown in figure 27.
2_ The motor can be rotated to three different positions, as shown in figure 6.

3.4_ Fixing the gearmotor to the ceiling

1_ In observance of positions A and B in figure 6, trace the two fixing points of the rear guide bracket at the centre of the door. Depending on the type of material, the front bracket can be secure by means of stud bolts, plugs or screws.
2_ After drilling holes at the envisaged points, leaving the gearmotor on the ground, lift the guide from the front section and secure it with two screws, plugs or stud bolts depending on the mounting surface.
3_ Lift the sliding guide so that the rear attachment reaches the same level as the front attachment, or to the same angle as the horizontal track of the door (A fig. 28).
4_ Measure the distance between the ceiling and interaxis of the gear unit fixing holes (B fig. 28).
5_ Bend the brackets supplied to the set measurement (measure from the centre of the first slot on the bracket).
6_ Fit the brackets on the gear unit and reposition the sliding guide (fig. 29).
7_ Mark the rear attachment fixing points on the ceiling (taking care to protect the sliding guide).
Complete guide installation.
8_ Three-sections track: repeat points 3_ to 7_ for the fixing at guide center
9_ For heavy doors or doors not running smoothly, the optional P-100BINSUPP accessory allows a second ceiling fixing point (fig. 3).
10_ Assemble the door fixing bracket as shown in fig. 30.
11_ With the door closed, pull the cord to release the carriage as shown in figure 31.
12_ Slide the carriage until the leaf attachment bracket is on the upper edge of the door, exactly perpendicular to the guide. Then fix the leaf attachment bracket with stud bolts or screws as shown in figure 32. Use stud bolts or screws suited to the material of the leaf, checking that it is suitable to withstand all the force required to open and close the door.
13_ Loosen the screws of the mechanical stops, then move it in front of the carriage, as shown on figure 33. Firmly push the carriage in the closing direction and, once reached the position, tighten the screws (A) fully down.
14_ For opening phase, use any available mechanical stop, both the door one and the complete automation track are equally fine.
15_ Attempt to move the door manually. Ensure that the carriage slides freely, without friction on the guide, and that manual manoeuvres are smooth without requiring particular effort.

3.5_ Installation of various devices

To install the other devices envisaged, refer to the relevant instructions. Check in figure 2 the devices that can be connected to T-SKY.

3.6_ Optional accessories

The range of T-SKY motors can be completed with the following optional accessories:

- P-100BANT adaptor for up-and-over doors;
- P-150SETSKY external manual release for application on handle;
- P-750BATTSKY Battery Pack;
- P-100BINSUPP Additional Ceiling Fixing Kit;
- P-100PROC Extension for T-SKY;
- P-100PROB Extension for T-SKY;

• *100BANT (fig. 34)*
Adaptor for up-and-over doors
100BANT must be used to power operate counterweight up-and-over doors with drive models T-SKY and T-SKY1.

• *150SETSKY*
External release (see relative instructions).

• *750BATTSKY*
Battery pack (see relative instructions).

• *100BINSUPP (fig. 3)*
Additional Ceiling Fixing Kit.

• *100PROC (fig. 9 - 14)*
Extension for T-SKY with chain.

• *100PROB (fig. 17 - 26)*
Extension for T-SKY with belt.

3.7_ Electrical connections

All electrical connections must be made withthe system disconnected from the power supply.

1_ To open the protection cover and access the electronic control unit of T-SKY, press on the side of the cover and turn the panel door as shown in fig. 35.

2_ Route the connection cables to the various devices through the cable clamps, leaving a length 20÷30cm more than necessary. See para. 2.2 for the type of cables and figure 3 for connections.

3_ Make the connections as shown in the diagram in figure 36. Terminals are removable to facilitate connections.

3.8_ Connecting to the power supply

For electric power supply of T-SKY simply connect the 230 Vac line to the transformer safety fuse holder (A fig. 36).

T-SKY must be connected to the power mains by skilled and qualified personnel, in possession of all requirements for full compliance with all legal provisions, standards and regulations.

The electric power line must be protectedagainst short circuits and dispersion to earth; a device must be fitted to enable shutoff of the power supply during installation or maintenance of T-SKY.

4_ K691M ELECTRONIC BOARD

4.1_ Technical specifications

Board power supply	24V AC - 50 Hz
Max. DC motor power	50 W - 24V DC
Quick-acting motor protection fuse (F1 - 5x20)	F 10 A
Quick-acting battery protection fuse (F2 - 5x20)	F 10 A
Quick-acting 24 Vdc auxiliary circuit protection fuse (F3 - 5x20)	F 2 A
Motor power circuit supply voltage	24V DC
Auxiliary device circuit power supply voltage	24V DC
Logic circuit power supply voltage	5V DC
Operating temperature	-20 °C ÷ +55 °C
Housing protection rating	IP 30

4.2_ Diagnostics leds

DL1 (OPEN/CLOSE)	red led indicating use of OPEN/CLOSE button
DL2 (STOP)	green led indicating use of STOP button
DL4 (PHOTO)	green led indicating PHOTOCELL
DL3 (ERR)	red led indicating ERRORS
DL5 (POWER)	green led indicating POWER ON (also when battery powered)

4.3_ Terminal board connections

FS1 - FS2 24 Vac board power supply input – Powered by transformer in relative compartment of T-SKY motor and protected by fuse on the 230 Vac power line.

1-4 ***(Photocell)*** PHOTOCELL OR SAFETY DEVICE input active on closure (Normally Closed contact); when activated, during the closing phase, generates a door stop command followed by complete door re-opening; in the opening phase generates a temporary stop command until the detected obstacle is removed (only if dip switch nr. 3 is set to ON). In the case of multiple safety devices, connect all NC contacts ***IN SERIES.*** *1= PHOTOCELL .*

N.B. **The photocell transmitter must always be powered by terminals 5 and 6, as the safety system check is performed on the latter (Fototest).**

To disable the safety system test function, or when using the photocells, set dipswitch 6 to OFF. If the fototest function fails, there is a control unit fault.

2-4 ***(Stop)*** STOP button input (Normally Closed contact); stops the door at any point of travel, temporarily inhibiting automatic closure, if programmed. It resumes operation when the OPEN/CLOSE button is pressed or radio control is used. *2= STOP, 4= COMMON*

3-4 ***(Open/Close)*** OPEN/CLOSE button input (Normally Open contact); activates door opening and closing and is controlled by operation of dipswitches 2 and 4. *3= OPEN/CLOSE.*

5-6 ***(Photocell TX)*** 24 Vdc output, for PHOTOCELL TX POWER SUPPLY (only those that perform the Fototest function) max. nr. 1 photocell transmitter. *5= NEGATIVE, 6= POSITIVE.*

6-7 ***(Photocell RX)*** 24 Vdc output, max. 15 W, for POWER SUPPLY OF RX AND POSSIBLE OTHER TX ELEMENTS OF PHOTOCELLS, EXTERNAL RECEIVERS etc; connect max. 3 pairs of photocells. *6= POSITIVE, 7= NEGATIVE.*

8-9 ***(Flashing light)*** 24 Vdc FLASHING LIGHT output (max. 15 W). The signal supplied is already specially modulated for direct use. The flashing frequency doubles during the closing phase. *8= POSITIVE, 9= NEGATIVE.*

10-11 ***(Antenna)*** AERIAL input for built-in RX 433,92 MHz. *10= EARTH, 11= SIGNAL.*

M4 quick connector for ENCODER and MOTOR connection. *Brown = 5 Vdc (**+5V**), green = ENCODER SIGNAL (**ENC**), White = 0 Vdc (**GND**), black = MOTOR NEGATIVE, red = MOTOR POSITIVE.*

17 - 18 24V – 1.2Ah BATTERY input.

4.4_ Memorisation procedure

IMPORTANT: After powering up the control panel, wait for 2 seconds before starting the adjustment procedures.

Once you have finished installing the automation system:

To program section doors use the ENTER button.
To program up-and-over doors use the O/C button.

1_ hold the ENTER (O/C) key on the board down for 3 sec.. The automation system will seek the opened position stop at reduced speed and will then closes fully. This serves to allow the system to acquire the travel parameters (length, closed and open position stops);

2_ the door then opens automatically and closes again fully at normal speed, slowing as it approaches the travel limit stops/limit switches. During these two stages, the system acquires, point by point, the force required to open and close the door;

3_ programming ends with the door in the closed position. To start regular operation, simply press the O/C button on the board, or the key on the remote control (if programmed).

NOTE: if you want the control unit to perform a new parameter storing procedure, simply hold down the ENTER (O/C) key for 3 seconds; the board will enter programming mode again and will run a new adjustment cycle, which will be stored in the memory, replacing the previous one.

Note: by means of any adjustment device on the control panel (trimmers or dipswitches) perform a complete manoeuvre (opening and closing) of the automation to apply the new settings.

After a power outage, the opener will perform a full cycle (opening + closing) at a slow speed to reset the operating parameters to the values originally saved.

4.5_ Logic settings

TRIMMER

T.C.A. Automatic closing time setting trimmer. From 0 to 120 sec.
Turn clockwise to increase the length of time the door stays open.

ENGLISH

FR Trimmer for adjustment of force during the opening phase.

NOTE: **you can turn the FR TRIMMER to further increase or decrease obstacle sensitivity. Turning clockwise increases the motor's operating force**.

4.6_ Dip-switches

1 **on:** at the end of opening, the door closes automatically after a time interval set on the trimmer A.C.T.;
off: closure requires a manual command;

2 **on:** with the automation running, a sequence of open/close commands activates a door sequence OPEN-CLOSE-OPEN-CLOSE, etc. (see also dip switch 4);
off: in the same conditions, a sequence of open/close commands activates a door sequence OPEN-STOP-CLOSE-STOP-OPEN-STOP, etc. (step-step function);

3 **on:** during the opening phase, the photocell intervenes, stopping the door until the detected obstacle is removed. The door resumes opening when the obstacle is removed;
off: the photocell does not intervene during opening;

4 **on:** NO-REVERSE function active; the door ignores the closing commands during opening and inverts the direction of door travel only in the closing phase;
off: on activation of the open-close button, the direction of travel is inverted also in the opening phase;

5 **on:** the pre-flashing function is enabled;
off: the pre-flashing function is disabled;

6 **on:** the "photocell check" function is enabled;
off: the "photocell check" function is disabled. N.B. to be used when photocells are not used;

4.7_ Features of K691M

LED - DL3

As well as indicating the presence of power, this led indicates any errors by means of a set series of flashing signals:

- always lit: normal operation;
- 1 flash: backup battery voltage less than 11.3 Vdc;
  Check the mains voltage, charge the battery, replace the battery;
- 2 flashes: fototest error;
  Disable fototest (dipswitch 6 set to OFF), check photocell operation and relative connection;
- 3 flashes: mains power failure;
  check thermal magnetic cut-out (upline of system), check fuses;
- 4 flashes: max. current limit exceeded;
  Peak of excessive motor absorption, ensure absence of obstacles along door travel, check motor absorption under no load and applied on the door;
- 5 flashes: no encoder signal;
  check wiring, check encoder, check that the motor rotates freely when powered directly by battery, check fuse F1;
- 6 flashes: presence of obstacle;
  Ensure absence of obstacles along door travel and smooth movement of the door;
- 7 flashes: no memorisation procedure performed;
  Perform memorisation procedure.
- 8 flashes: no motor signal;
  check wiring, check that the motor rotates freely when powered directly by battery, check fuse F1;

Multiple error signals are indicated with a pause of 2 seconds between one signal and the next. The error signals persist until a complete automation manoeuvre is performed (opening and closing).

If an obstacle is detected while closing, the control unit reverses the movement and switches to slow mode as it searches for the closing travel limit. To reset the automation must complete the opening cycle, if not, every time the safety device is activated the automation will search for the travel limit.

If the obstacle is detected during a timed opening, a manual command via remote control (CH1) or buttons, O/C or ENTER is required to restart the automation.

BATTERY CHARGE CARD (BUILT-IN)

If the battery is connected, the automation will be operative also in the event of a power failure. If voltage falls below 11.3 Vdc, the automation stops operating (the control panel remains powered); if it falls below 10.2 Vdc, the card disconnects the battery completely (the control panel is no longer powered).

OBSTACLE DETECTION

The obstacle detection function (settable via the trimmer FR), if activated during the opening phase, re-closes the door by approx. 20 cm, and during closing activates a complete opening cycle.
IMPORTANT: the control panel logic may interpret mechanical friction as an obstacle.

N.B. the O/C button on the card has the same function as the OPEN/CLOSE key.

4.8_ Advanced functions

Clock function: a timer may be used (e.g. weekly), connected to the input of the open-close button, to keep the door open in set time intervals, to then enable automatic re-closure.
N.B. the door remains open while the Op/Cl input is engaged.

Open only" function: by setting dipswitch 1 to ON and dipswitch 4 to OFF, the Op/Cl input will only operate as an opening command, while the door will close exclusively after the set interval for automatic closure.

4.9_ Built-in 433.92 MHz radio receiver

The radio receiver can learn up to max. 30 codes in rolling codes (BUG2R, BUG4R, K-SLIM-RP, T-4RP) set as required.

RADIO CONTROL LEARNING

1_ briefly press the key RADIO to associate a radio control with the function OPEN/CLOSE;
2_ led DL3 turns off to indicate code learning mode (if no code is entered within 10 seconds, the card exits programming mode);
3_ press the key of the radio control to be used;
4_ led DL3 turns on again to confirm memorisation (if this does not occur, wait 10 seconds and repeat the steps from point 1);
5_ to memorise other radio controls, repeat the procedure from point 1, for up to a maximum of 30 transmitters.
6_ to exit learning mode without memorising a code, briefly press the key RADIO.

N.B.: if the maximum number of radio controls is reached (30), led DL3 flashes quickly for approx. 3 seconds, without performing memorisation.

REMOTE PROGRAMMING VIA T-4RP, K-SLIM-RP and BUG-R

It is also possible to learn the new versions of the radio controls T-4RP, K-SLIM-RP and BUG-R remotely, i.e. without acting directly on the receiver programming keys.
A radio control previously programmed on the receiver is all that is needed to open the remote programming procedure for new radio controls, programmed via TAUPROG.

Activation of self-learning mode of the control unit and memorisation of the new radio control.
This operation enables memorisation of the new radio control code on the control unit, but an operational "RP" radio control must already be available. The subsequent operations must be performed in the vicinity of the system control unit. Activation of self-learning mode on the control unit and memorisation of the new radio control:

1 On the operative (old) radio control, press and hold the key for channel 1, and press the channel 2 key three times.

2 Release the keys. The radio control led starts flashing to indicate that the self-learning mode is enabled.

3 Still on the operative (old) radio control, press the key currently used to activate the automation for at least 3 seconds.

4 At this point the control unit confirms changeover to programming mode by activating the flashing light (except for external receivers in the RXDC series).

5 Press the radio control key to be memorised again. If programming is successful, the control unit flashing light turns off.

DELETING RADIO CONTROLS

1_ press and hold the RADIO key for approx. 3 seconds to delete all associated radio controls;
2_ led DL3 starts flashing slowly to indicate that deletion mode is enabled;
3_ release the RADIO key and press again for 3 seconds;
4_ led DL3 turns off for approx. 3 seconds, and then remains lit to confirm deletion;
6_ to exit deletion mode, briefly press the RADIO key.

5_ MANUAL RELEASE

If manual movement of the door is necessary, due to a power failure or problem with the automation, the release device is used as follows:

1_ In the case of the traditional release system, pull the knob downwards as shown in fig. 31.
2_ In the case of external release (8 fig. 3), turn the handle.
3_ Manually open or close the door.

6_ RESTORING NORMAL OPERATION

To restore normal automation operation, return the door to the initial position when you hear the carriage re-engage.

Caution: if you do not hear the carriage re-engage (when the initial position is with the door closed), activate the operator (via radio control, key-operated selector switch etc.); a number of complete manoeuvres are required to repeat automatic self-learning of the travel limits.

7_ FINAL CHECKS AND START-UP

Immediately after powering up T-SKY, perform a number of simple checks:

- Ensure that the motor does not activate any door movement and that the courtesy light is off.

If this is not so, disconnect the control unit from the power supply immediately and check the electrical connections carefully.

Other useful information for troubleshooting can be found in chapter 12 “Troubleshooting”.

8_ TESTING AND COMMISSIONING

This is the most important phase of automation set-up to ensure maximum system safety.

The test can also be performed as a periodic check of automation devices.

Testing of the entire system must be performed by skilled and qualified personnel, who are responsible for the tests required to verify the solutions adopted according to the risks present, and for ensuring observance of all legal provisions, standards and regulations, with particular reference to all requirements of the standard EN12445 which establishes the test methods for testing automations for power-operated gates and doors.

8.1_ Testing

Each automation component, such as sensitive edges, photocells, emergency stop, etc., requires a specific testing phase; for these devices take care to follow the procedures specified in the respective instruction manual.

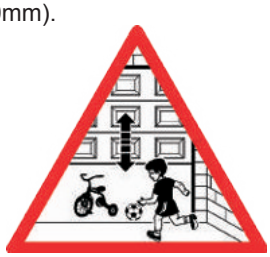
To test T-SKY, perform the following sequence of operations:

1_ Ensure that all contents of chapter 1 “WARNINGS” are strictly observed.
2_ Release the door by pulling the release cord downwards. Check that it is possible to move the door in the opening and closing directions with a maximum force of 225N.
3_ Re-engage the carriage.
4_ Using the selector or radio transmitter, test door closing and opening and ensure that movement is as envisaged.
5_ A number of tests are recommended to assess smoothness of door movement and check for any assembly or adjustment defects, as well as for any points of friction.
6_ Check operation of all system safety devices one at a time (photocells, sensitive edges etc.);
7_ To test photocells and in particular that there is no interference with other devices, pass a cylinder (diameter 5cm, length 30cm) through the optic axis joining the pair of photocells, first close to the TX and then the RX and then midway between the two. Ensure that in all cases the device engages, changing from the active status to alarm status and vice versa, and finally that the action envisaged occurs on the control unit, for example that during the Closing manoeuvre, the door inverts the current movement.
8_ If hazardous situations generated by the moving door are protected by means of impact force limitation, measure the force as specified in the standard EN 12445. If the settings “speed” and “gearmotor force” control are used as an auxiliary function with the system for reduction of impact force, test and identify the setting that obtains the best results.

8.2_ Commissioning

Commissioning can only be performed after positive results of all testing phases. Partial or “makeshift” commissioning is strictly prohibited.

1_ Prepare the automation technical documentation (to be conserved for at least 10 years), which must contain the following documents: an overall layout diagram of the automation, electrical wiring diagram, risk assessment and relative solutions adopted, manufacturer’s declaration of conformity for all devices used (for T-SKY use the EC declaration of conformity enclosed) copy of instruction manual for operation and the automation maintenance schedule.
2_ Permanently affix a label or plate on the door, indicating the operations for manual release and manoeuvres (use the figures in the “User Guide”).
3_ Permanently affix a label or plate on the door with this image (min. height 60mm).



4_ Affix a dataplate on the door, specifying at least the following data: type of automation, name and address of manufacturer (responsible for commissioning), serial number, year of construction and CE mark.
5_ Compile the automation declaration of conformity and deliver to the owner.
6_ Compile the manual “Instructions and warnings for automation operation” and deliver to the owner.
7_ Produce and supply the owner with the automation maintenance schedule (containing all maintenance instructions for all automation devices).
8_ Before commissioning the automation, ensure that the owner is adequately informed in writing of all associated risks and hazards (for example of the manual of instructions and warnings for automation operation).

9_ OPERATION

Use of the device for purposes or in circumstances other than as specified in this document is strictly prohibited. Note that this is a mains-powered automatic device and must therefore be used with caution. The following in particular is recommended:

1_ never touch the device with wet hands;
2_ disconnect the power supply before opening the controls box and/or gearmotor;
3_ never pull the power cable to remove it from the socket;
4_ never touch the motor before ensuring it is completely cool;
5_ only move the door when it is completely visible;
6_ keep away from the operating range of the door when in movement: wait until it is stationary;
7_ never allow children or animals to play in the vicinity of the door;
8_ never allow children or unskilled persons to use the remote control or other activation devices;
9_ perform periodic maintenance;
10_ in the event of a fault, disconnect the power supply and only move the door manually when possible and in safety. Do not intervene on the door; call an authorised technician for assistance.
11_ never touch any mechanical part during operation;
12_ all actions not expressly envisaged in these instructions are strictly prohibited.

10_ MAINTENANCE AND DISPOSAL

This chapter describes the procedures for drawing up a maintenance schedule and disposal of T-SKY.

10.1_ Maintenance

To maintain a constant level of safety and guarantee maximum lifetime of the entire automation, regular maintenance is required.

Maintenance must be performed in strict observance of all safety instructions in this manual and in compliance with current legislation and standards.

For devices other than T-SKY follow the respective maintenance schedules.

1_ For T-SKY route maintenance is required within maximum six months or 3000 duty cycles from the previous maintenance.
2_ Disconnect all electric power supply sources, including any backup batteries.
3_ Check the condition of all automation materials, with special attention to possible erosion or oxidation of structural parts; replace any parts that do not guarantee total reliability.
4_ Check the state or wear of all moving parts: belt, carriage, pinions and all door parts; replace any parts if worn.
5_ Reconnect the power supply sources and perform all checks and tests as envisaged in paragraph “6.1 Testing”.

10.2_ Special maintenance

If more complex operations are required on electro-mechanical parts, the faulty part should be removed to enable repairs in the manufacturer’s workshop by technicians or other authorised centre.

10.3_ Disposal

T-SKY is made up of different types of material; some may be recycled, such as steel, aluminium, plastic, or electric cables, while others must be disposed of: batteries and electronic boards.

Some components may contain pollutant substances; do not dispose of into the environment.Seek information on recycling or disposal systems in observance of current and local standards.

1_ Disconnect the automation and any backup battery from the electrical mains.
2_ Disassemble all devices and accessories, in reverse order of the procedures described in chapter “3 Installation”.
3_ Separate where possible all parts which may or must be recycled or disposed of differently, for example metal parts from plastic parts, electronic boards etc.
4_ Sort and assign the separated materials to specialist waster recovery and disposal centres in your local area.

11_ NOISE LEVELS

The noise emission level of the T-SKY operator, from the work position, is 52 dB(A).

12_ MALFUNCTIONS: TROUBLESHOOTING

The automation does not start

a_ Use a Multimeter to check presence of 230 Vac supply voltage.
b_ Check that the NC contacts of the card are effectively normally closed (3 green leds lit) and that the red leds for opening commands are off.
c_ Set dipswitch 6 (fototest) to OFF;
d_ Set trimmers FRC and FRA to the maximum value;
e_ Use the Multimeter to check that the fuses are intact.

The radio control range is low

a_ Check that the earth connection and aerial signal have not been inverted;
b_ Do not make joints to extend the aerial cable;
c_ Do not install the aerial at low heights or concealed by walls or columns;
d_ Check status of the radio control batteries.

The door opens in the opposite direction

a_ Invert the motor connection (RED and BLACK wires on the motor).

MANUFACTURER'S DECLARATION OF INCORPORATION
(in accordance with European Directive 2006/42/EC App. II.B)

Manufacturer:	TAU S.r.l.
Address:	Via E. Fermi, 43 36066 Sandrigo (Vi) ITALY

Declares under its sole responsibility, that the product:	*Electromechanical actuator*
designed for automatic movement of:	*Garage doors*
for use in a:	*Residential environment*
complete with:	*Electronic control unit, radioreceiver and radiocontrol*

Model:	*T-SKY*
Type:	*T-SKY / T-SKY1*
Serial number:	*SEE SILVER LABEL*
Commercial name:	*AUTOMATION FOR GARAGE DOORS*

Has been produced for incorporation on an access point (*garage door*) of for assembly with other devices used to move such an access point, to constitute a machine in accordance with the Machinery Directive 2006/42/EC.

Also declares that this product complies with the essential safety requirements of the following EEC directives:

- ***2006/95/EC Low Voltage Directive***
- ***2004/108/EC Electromagnetic Compatibility Directive***

and, where required, with the Directive:

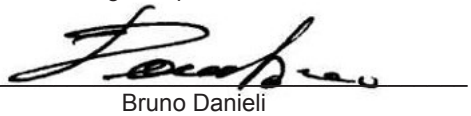
- ***1999/5/CE Radio equipment and telecommunications terminal equipment***

Also declares that ***it is not permitted to start up the machine*** until the machine in which it is incorporated or of which it will be a component has been identified with the relative declaration of conformity with the provisions of Directive 2006/42/EC.

The manufacturer undertakes to provide, on sufficiently motivated request by national authorities, all information pertinent to the quasi-machinery.

Sandrigo, 11/10/2011

Legal Representative



Bruno Danieli

Name and address of person authorised to draw up all pertinent technical documentation:

Loris Virgilio Danieli - via E. Fermi, 43 - 3606 Sandrigo (Vi) Italia

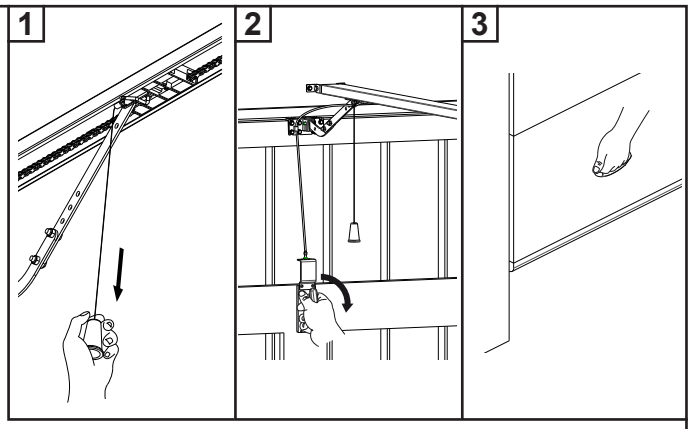
MANUAL OPERATION

If manual movement of the door is necessary, due to a power failure or problem with the automation, the release device is used as follows:

1_ In the case of the traditional release system, pull the knob downwards as shown in fig. 31.
2_ In the case of external release (8 fig. 3), turn the handle.
3_ Manually open or close the door.

RESTORING NORMAL OPERATION

To restore normal automation operation, return the door to the initial position when you hear the carriage re-engage.
Caution: if you do not hear the carriage re-engage (when the initial position is with the door closed), activate the operator (via radio control, key-operated selector switch etc.); a number of complete manoeuvres are required to repeat automatic self-learning of the travel limits.



INSTRUCTIONS AND WARNINGS FOR AUTOMATIC SYSTEM USERS

CONGRATULATIONS on choosing a Tau product for your automation system!
Tau S.r.l. produces components for automatic gates, doors, barriers and shutters. These include gear motors, control units, radio control devices, flashing lights, photocells and accessories.
Tau products are exclusively made with top quality materials and processes and, as a company, we constantly research and develop innovative solutions in order to make our equipment increasingly easier to use. We also pay great attention to all details (technology, appearance and ergonomics). The extensive Tau range makes it possible for your fitter to choose the product which best meets your requirements.
Tau, however, does not produce your automated system as this is the outcome of a process of analysis, evaluation, choice of materials and installation performed by your fitter.
Each automated system is unique, therefore, and only your fitter has the experience and professionalism required to create a system that is tailor-made to your requirements, featuring long-term safety and reliability, and, above all, professionally installed and compliant with current regulations.
An automated system is handy to have as well as being a valid security system. Just a few, simple operations are required to ensure it lasts for years.

DESCRIPTION

T-SKY is a range of gearmotors destined for the automation of sectional doors and, by means of the special accessory P-150BAN not supplied (the door does not open completely), spring or counterweight up-and-over doors, projecting and non-projecting.
The irreversible system guarantees mechanical blocking of the door when the motor is not operating, and therefore no lock is necessary; an internal and external manual release (optional) enable door manoeuvres in the event of a power failure or when out of service.
The buffer battery accessory P-200BATTSKY (optional) is also available, which enables certain manoeuvres in the event of a mains power failure.
Even if your automated system satisfies regulatory safety standards, this does not eliminate “residue risks”, that is, the possibility of dangerous situations being generated, usually due to irresponsible and/or incorrect use. For this reason we would like to give you some suggestions on how to avoid these risks:

- **Before using the system for the first time:** ask your fitter to explain how residue risks can arise and read the instructions and warnings in the user handbook that your fitter will have given you. Keep this manual for future use and, if you should ever sell your automated system, hand it over to the new owner.
- **Your automated system carries out your commands to the letter:** irresponsible and/or incorrect use may cause it to become dangerous. Do not use the system if people, animals and/or objects enter its operating area.
- **IT IS NOT A TOY!** Make sure children do not play near the system and keep the remote control device out of their reach.
- **Faults:** If you notice any abnormal behaviour, disconnect the system from the power supply immediately and perform the manual release operation (see figure). Do not attempt to repair the door but call in your fitter: the system will operate manually as it did before installation.
- **Maintenance:** to ensure long life and totally safe operation, the system required routine maintenance, just like any other piece of machinery. Establish maintenance times together with your fitter. Tau recommends a frequency of 6 months for normal domestic installations but this may vary depending on the intensity of use (always every 3000 work cycles).

N.B.: All controls, maintenance work and/or repairs may only be carried out by qualified personnel.

- Do not modify the plant or the relative programming and adjustment parameters: your fitter will see to that.

N.B. Final testing, routine maintenance and any repairs must be documented by the fitter (in the relative spaces) and such documents kept by the owner of the system (IF THE DOCUMENTS ARE NOT PRODUCED, THE WARRANTY WILL EXPIRE).

- **Disposal:** At the end of system life, make sure that it is demolished by qualified personnel and that the materials are recycled or disposed of according to local regulations.

The manual manoeuvre must ONLY be done with the door stopped and AFTER disconnecting power from the electrical control unit.

N.B.: if your remote control unit (if supplied) starts working badly after a time, or does not work at all, the batteries may be flat (they can last from several months to 2/3 years depending on what type is used). This can be seen from the fact that the transmission confirmation LED gets dimmer or only turns on for brief moments. Before contacting your fitter, try exchanging the battery with one from a good transmitter: if this is the reason for the fault, simply replace the battery with another one of the same type.

If you wish to add a new automated system to your house, contact your fitter and we at Tau to have the advice of a specialist, the most developed products on the market, best operation and maximum automation compatibility.
Thank you for reading these suggestions and we trust you are fully satisfied with your new system: please contact your fitter for any further requirements.

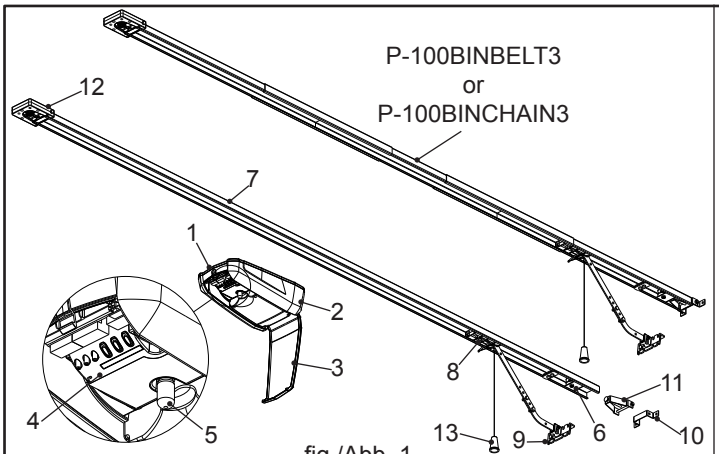
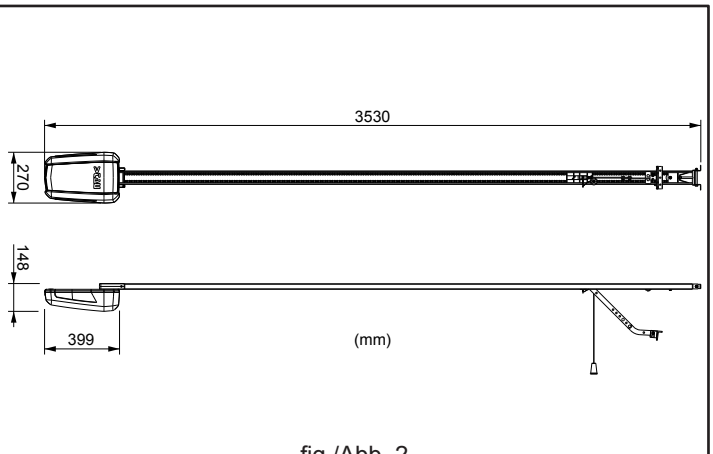


fig./Abb. 1



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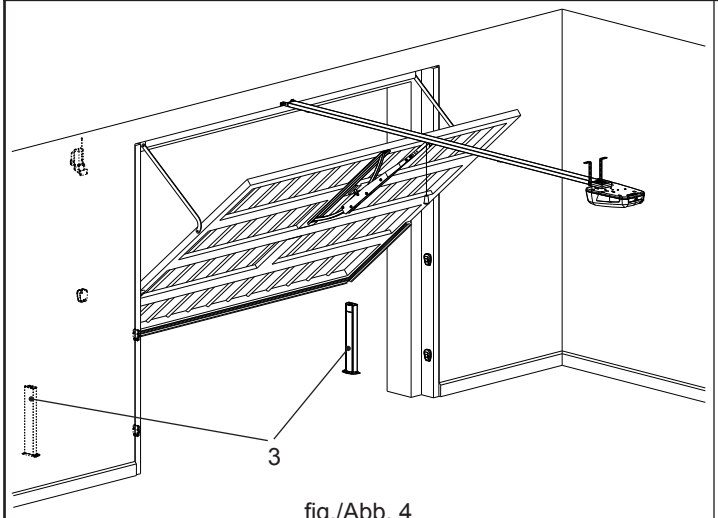

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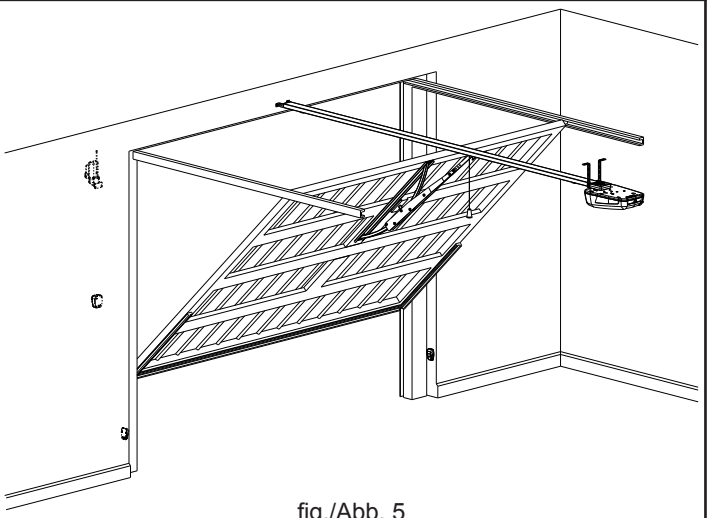


fig./Abb. 5

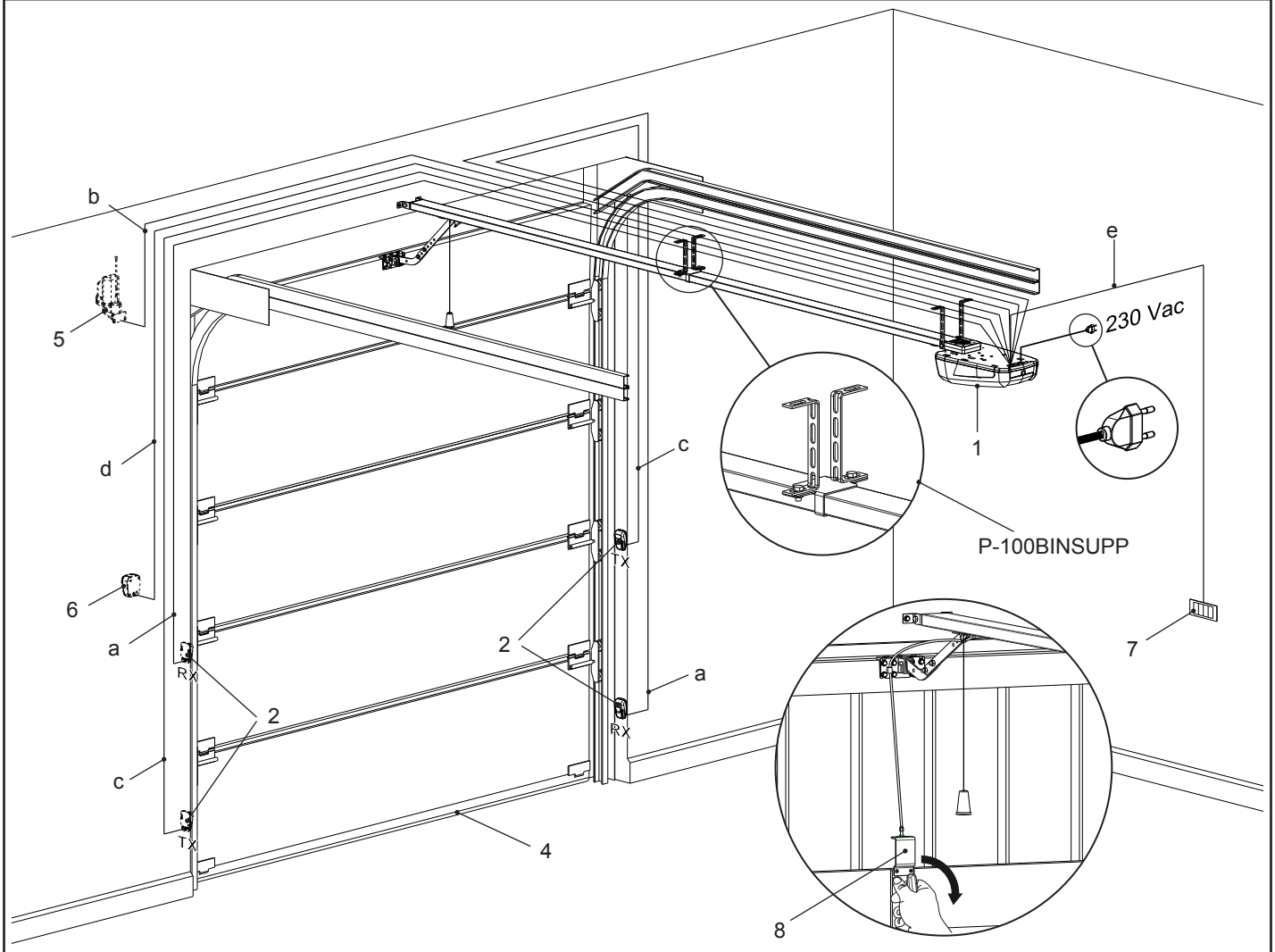
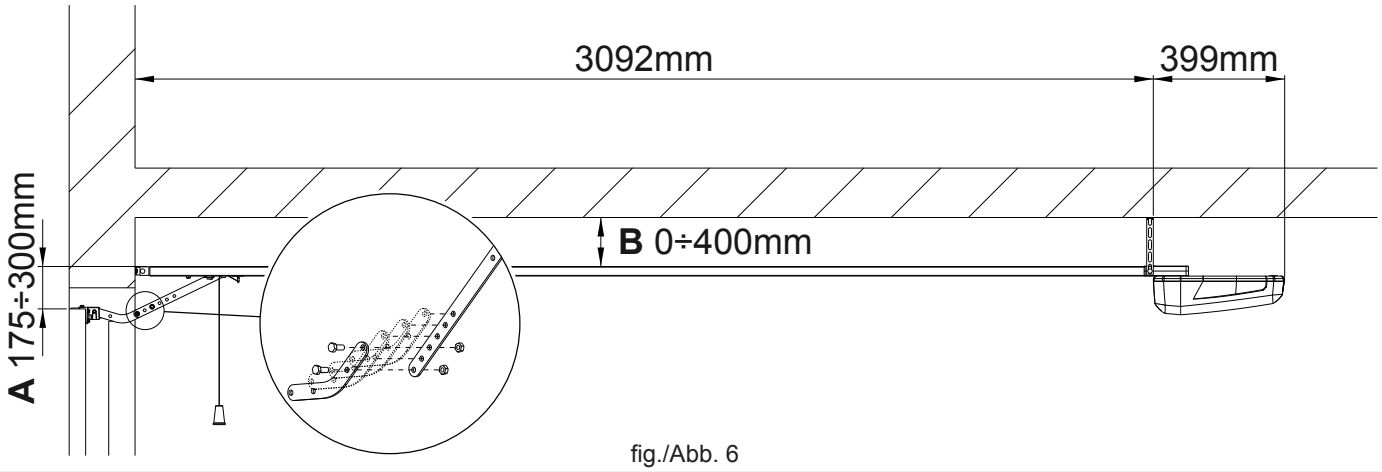


fig./Abb. 3



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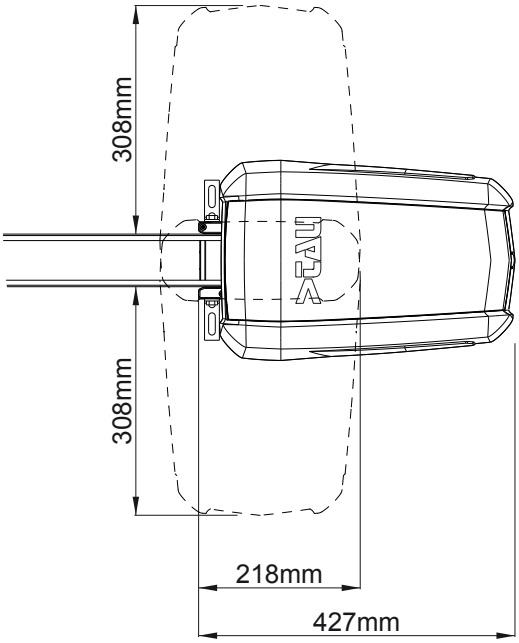

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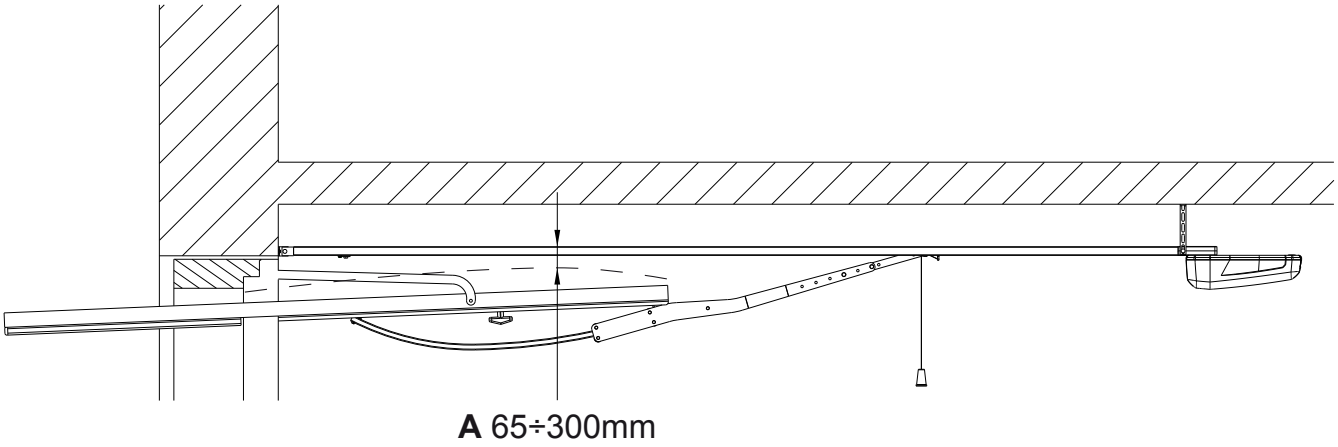

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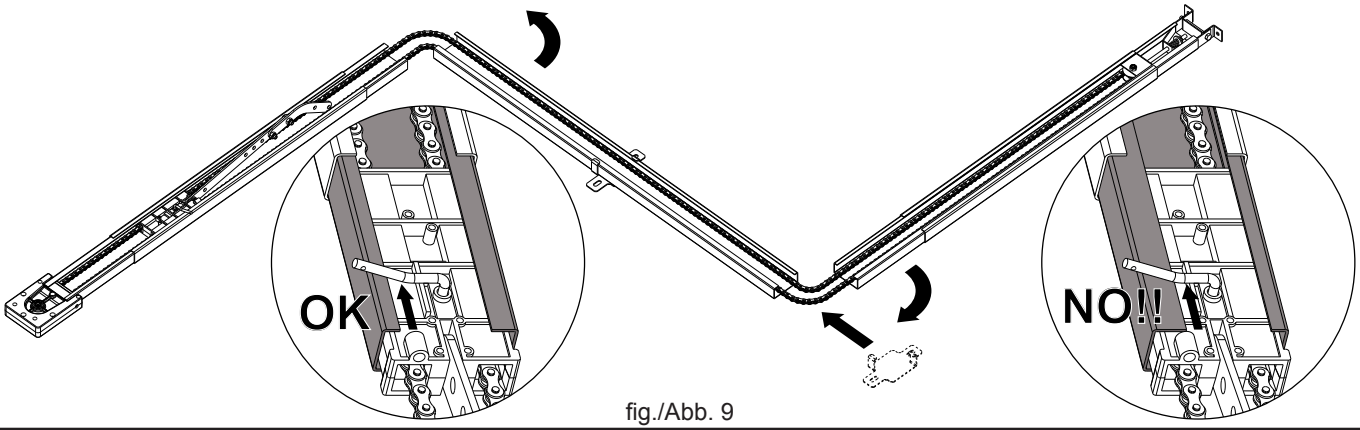

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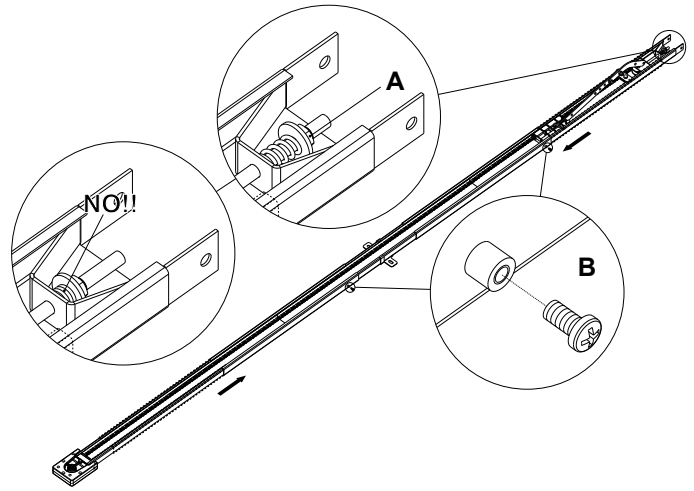

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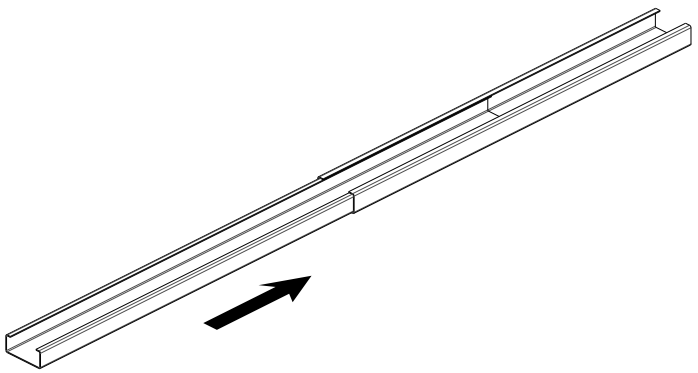

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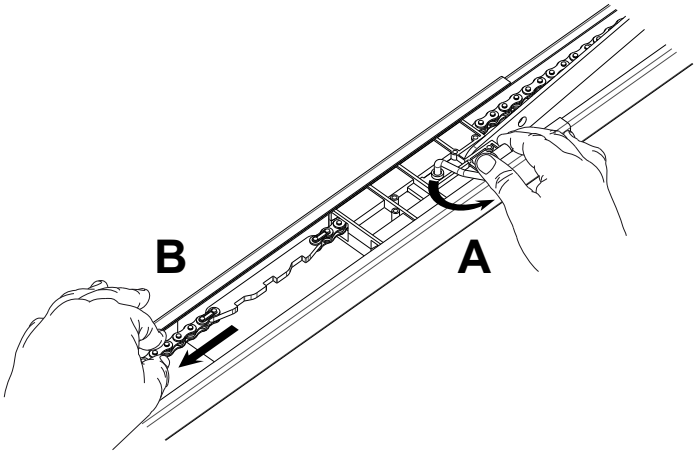

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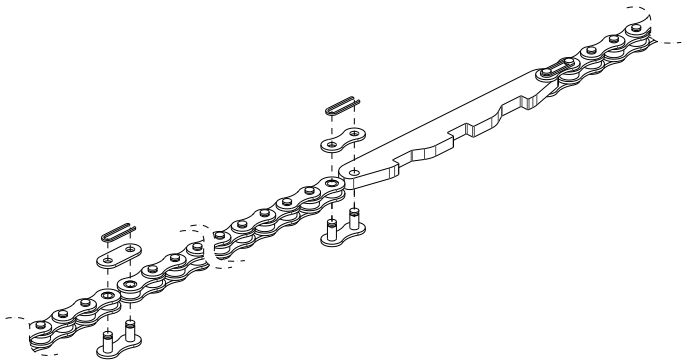

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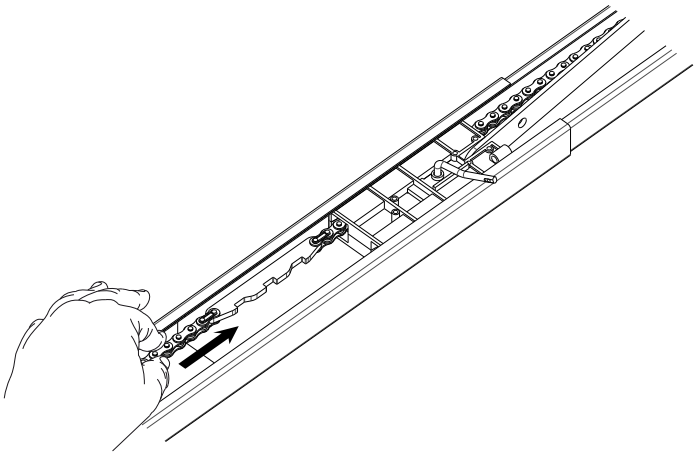

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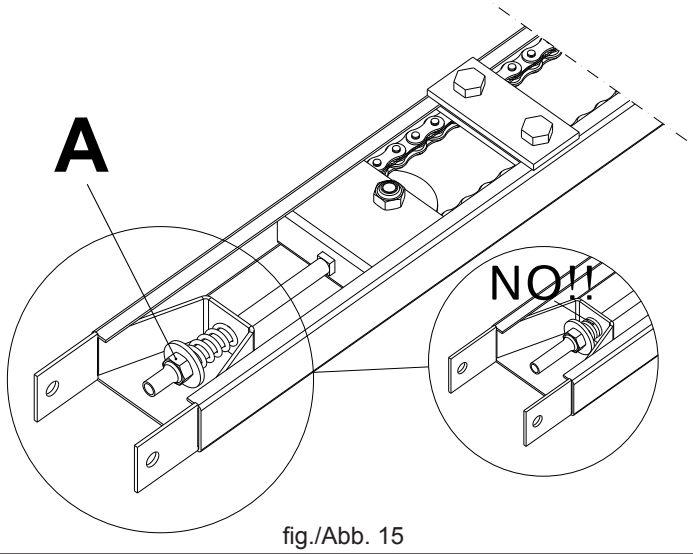

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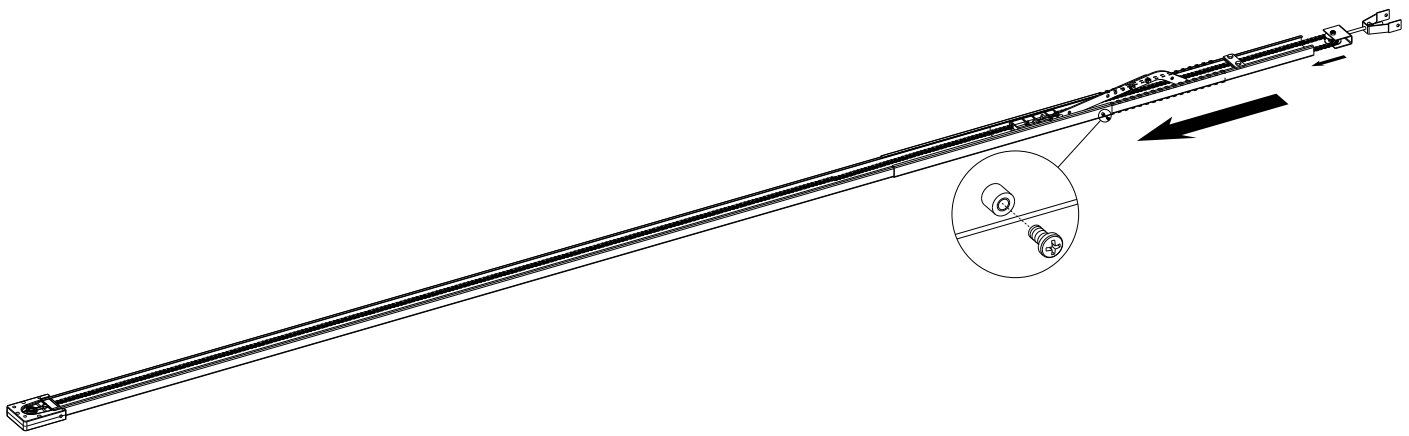

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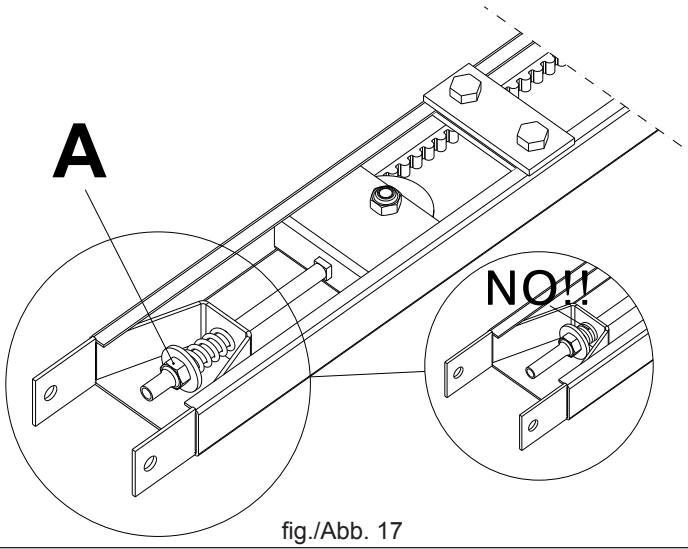

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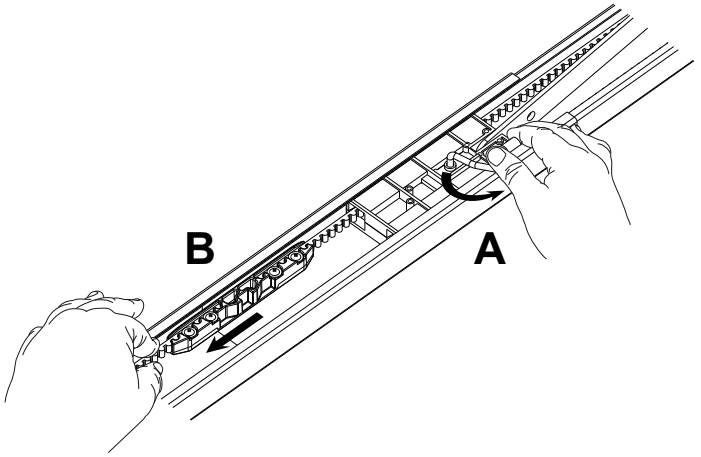

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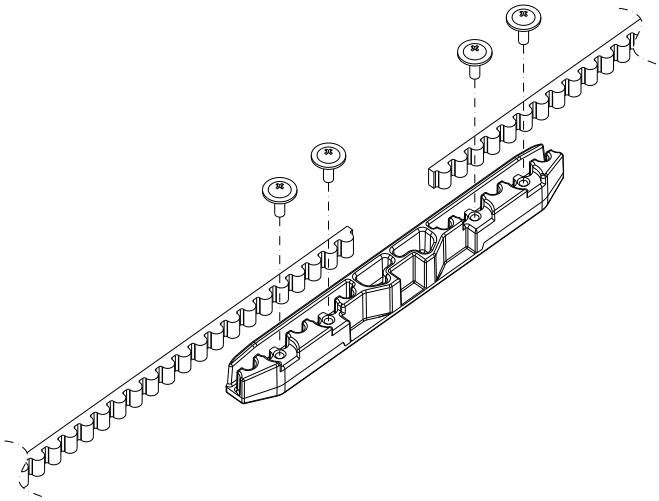

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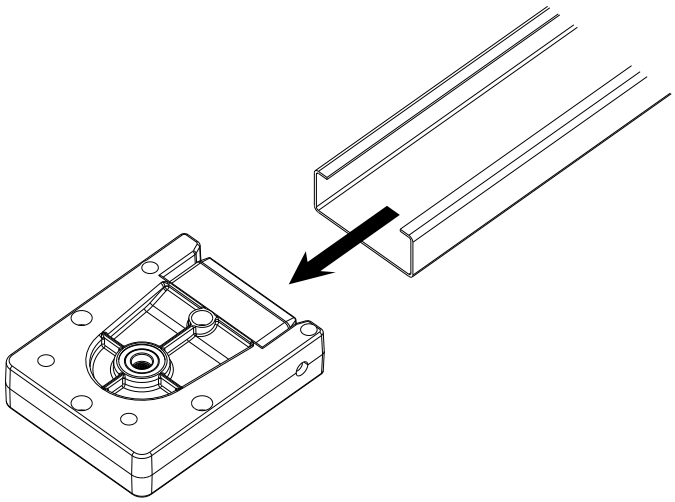

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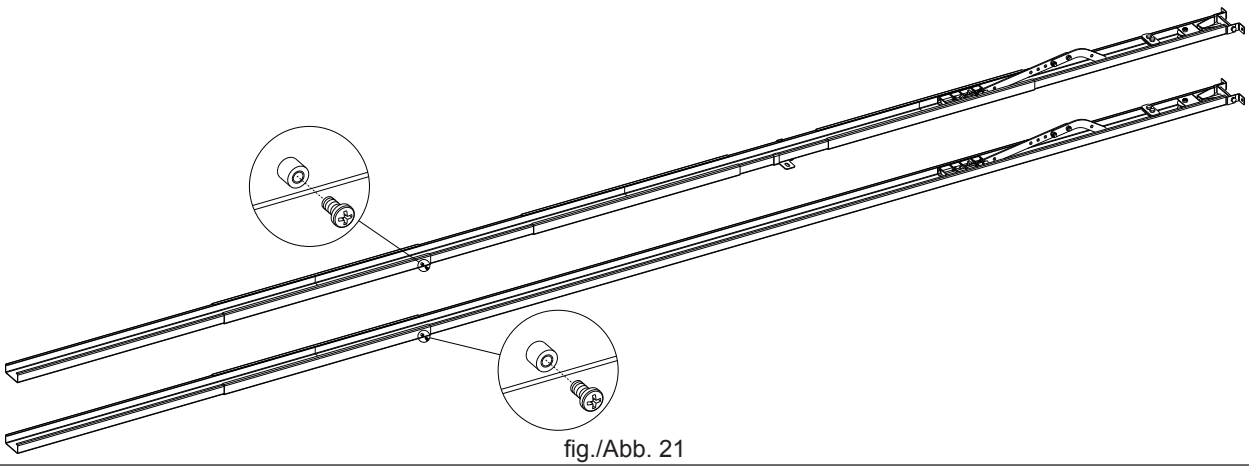

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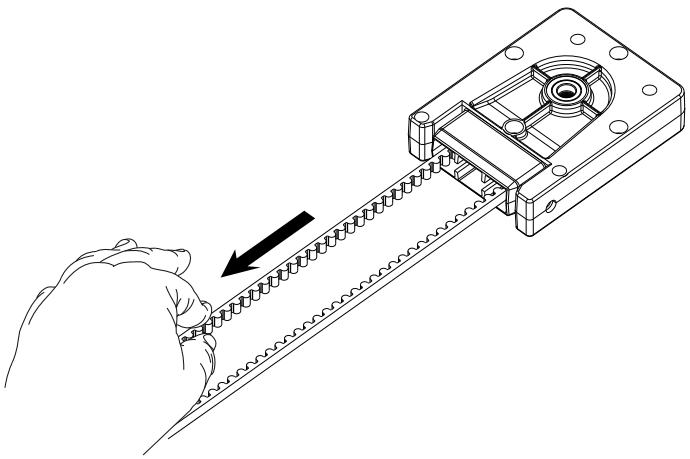

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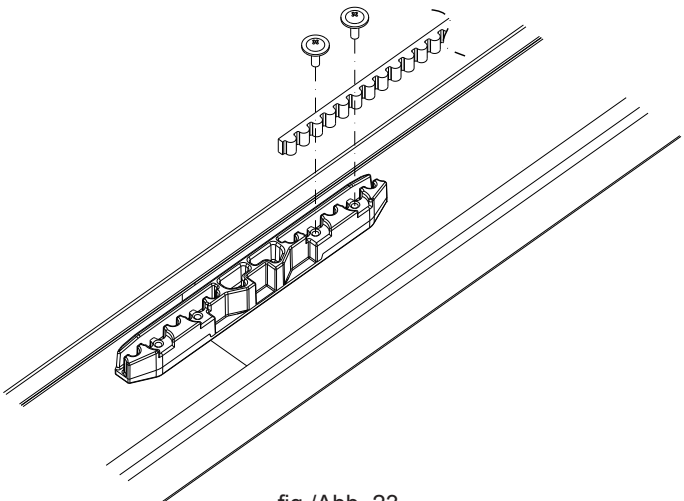

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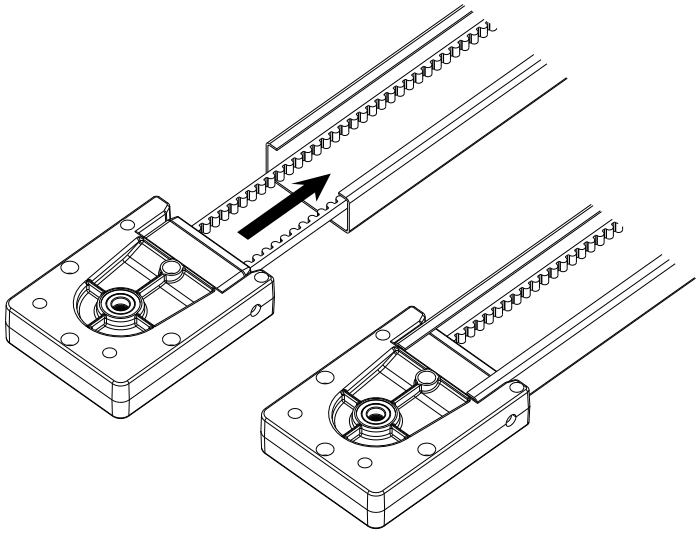

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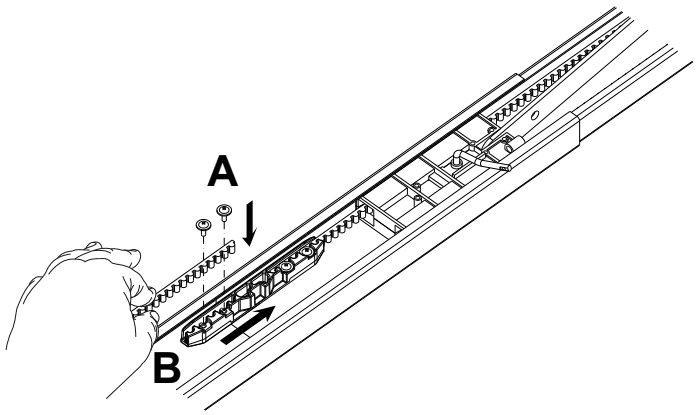

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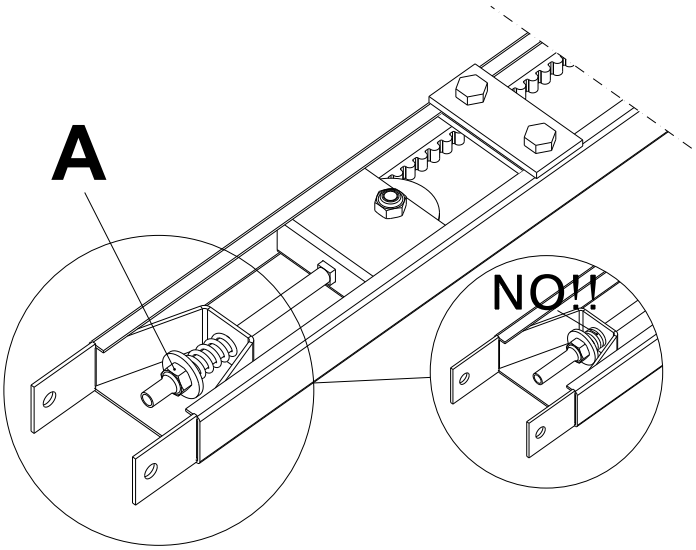

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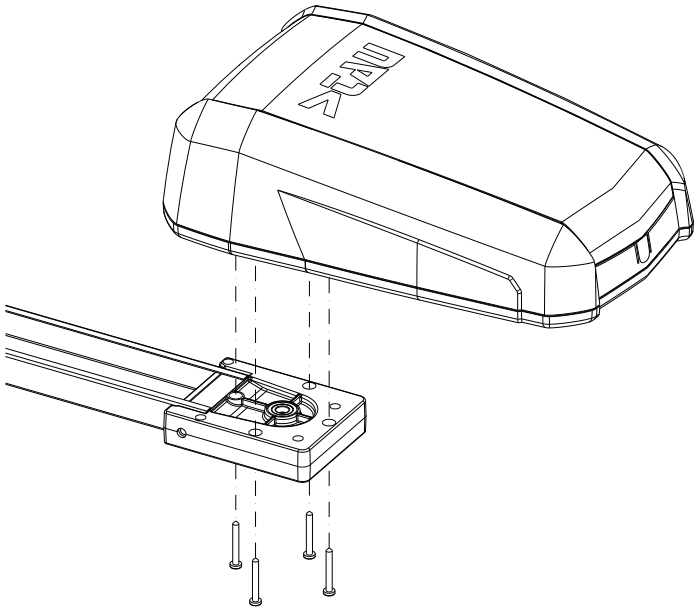

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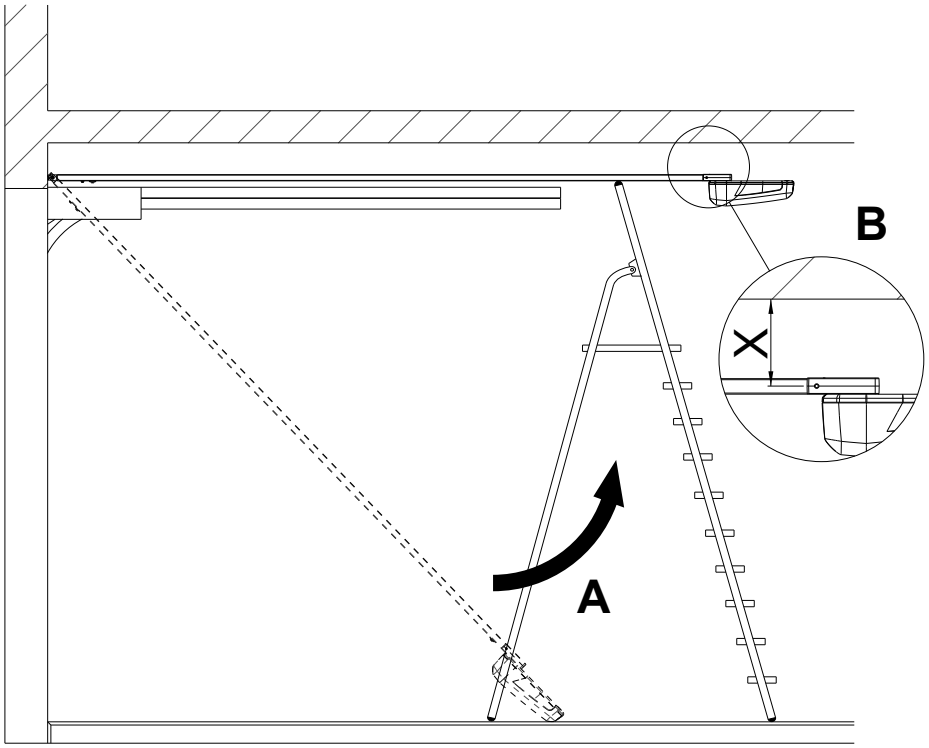

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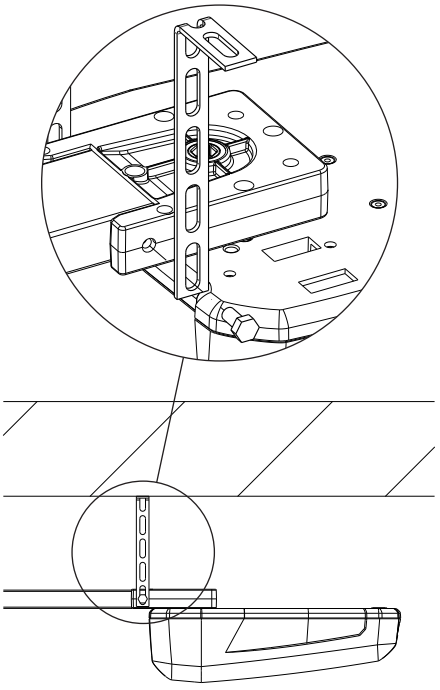

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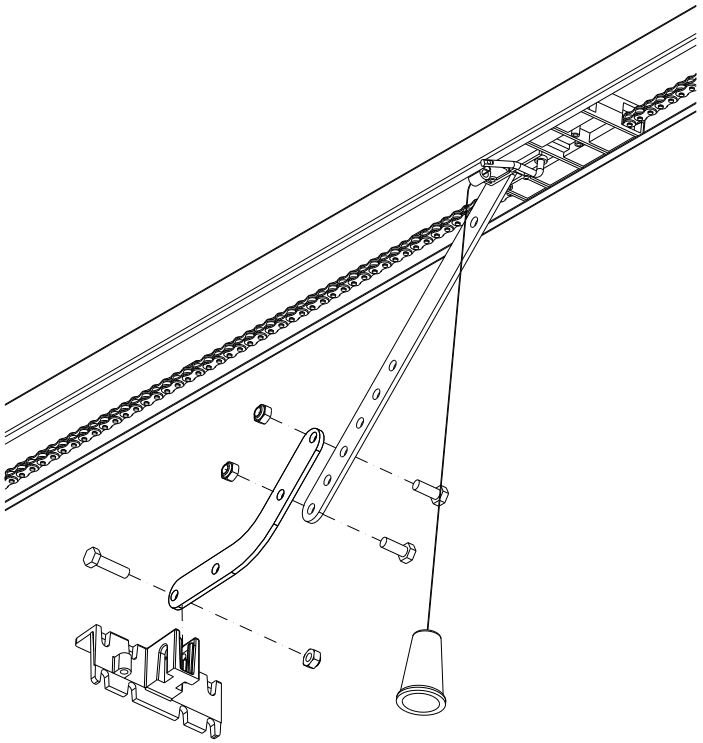

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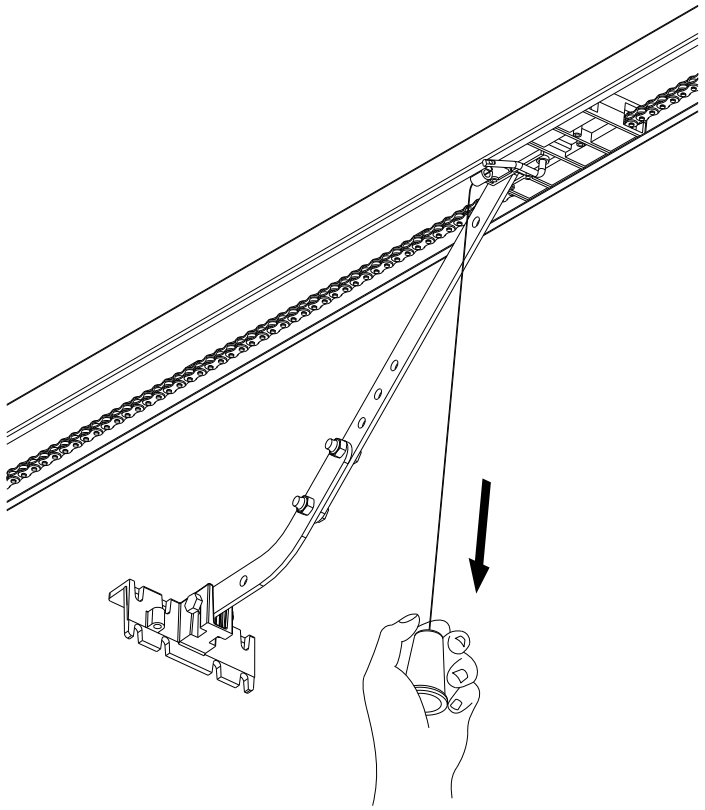

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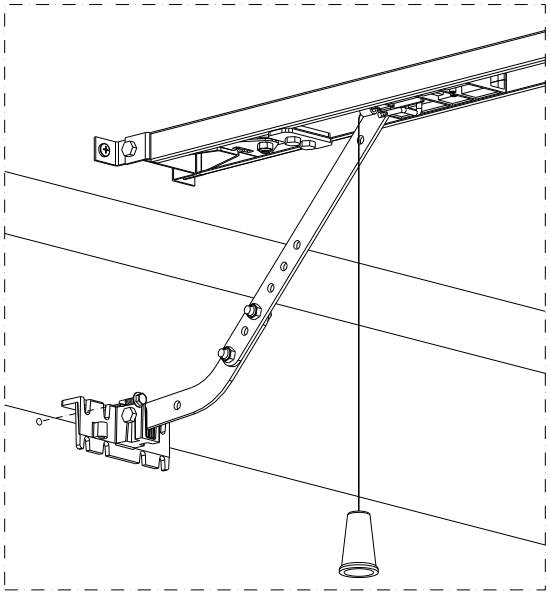

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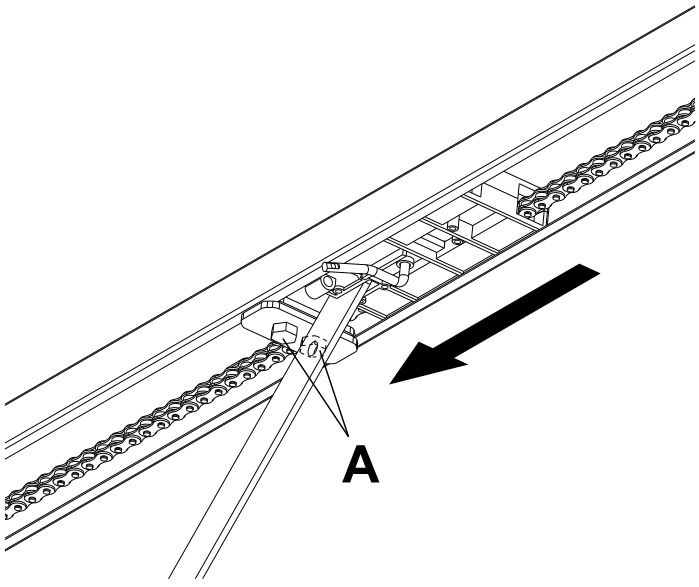
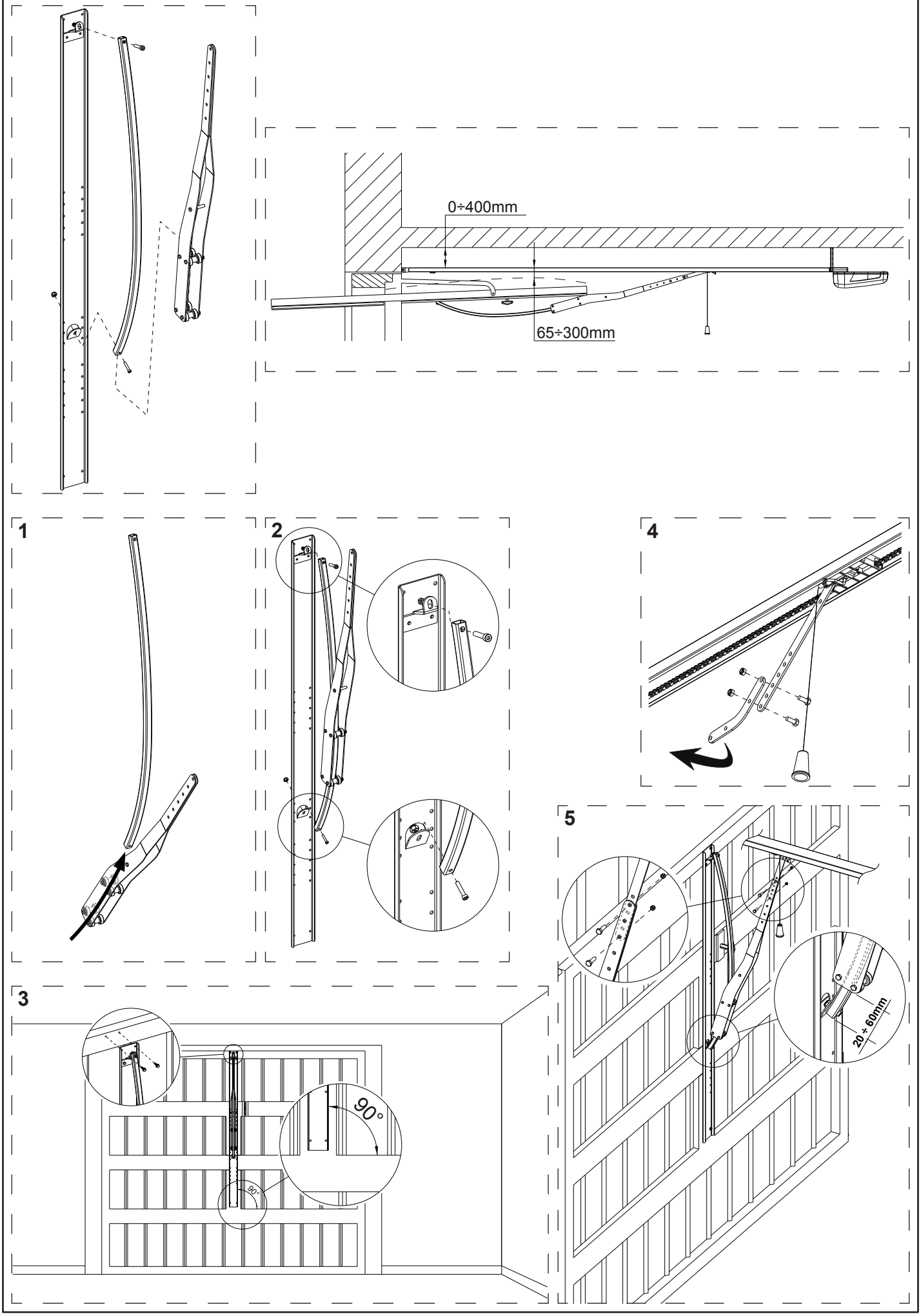
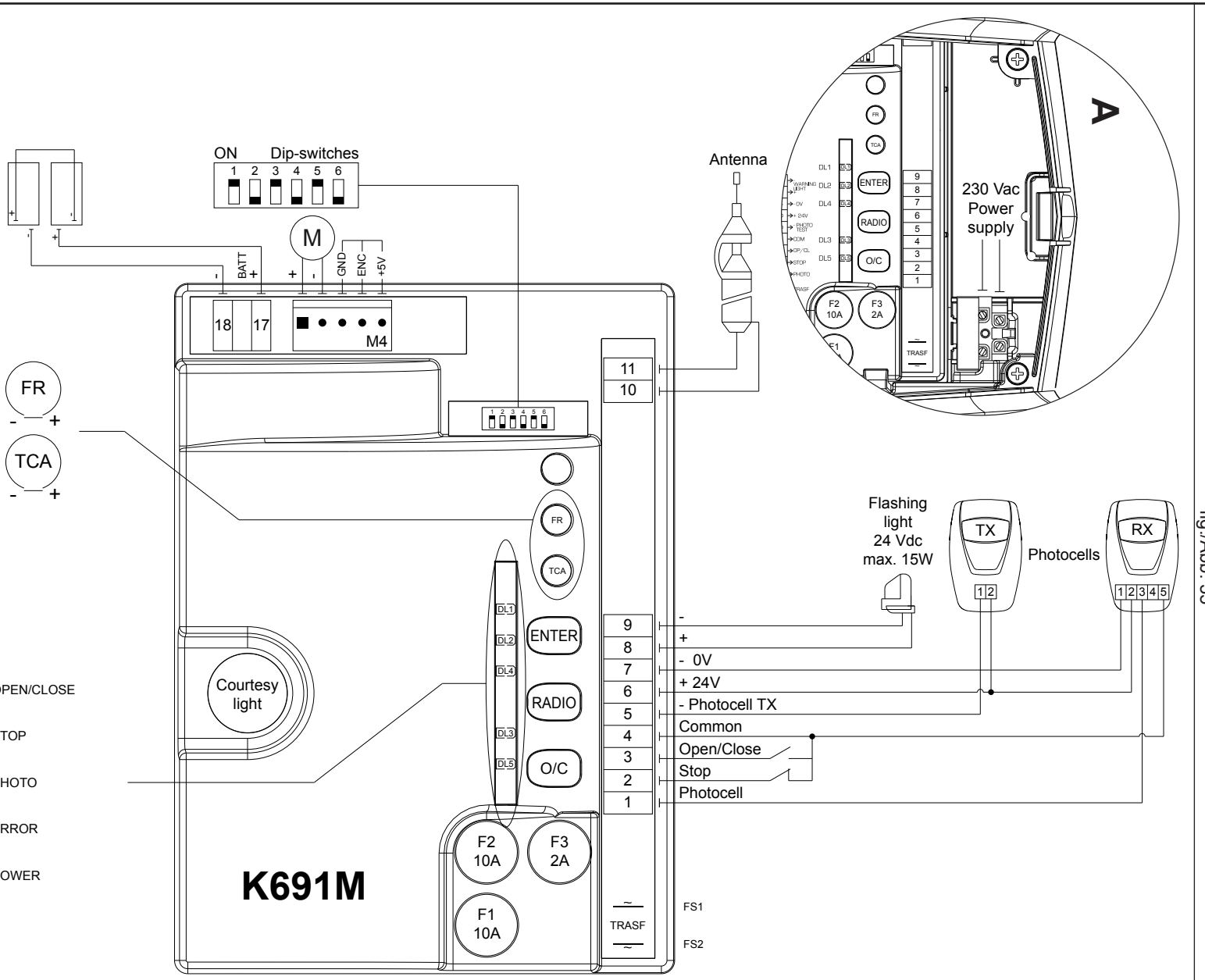


fig./Abb. 33

fig./Abb. 34: P-100BANT





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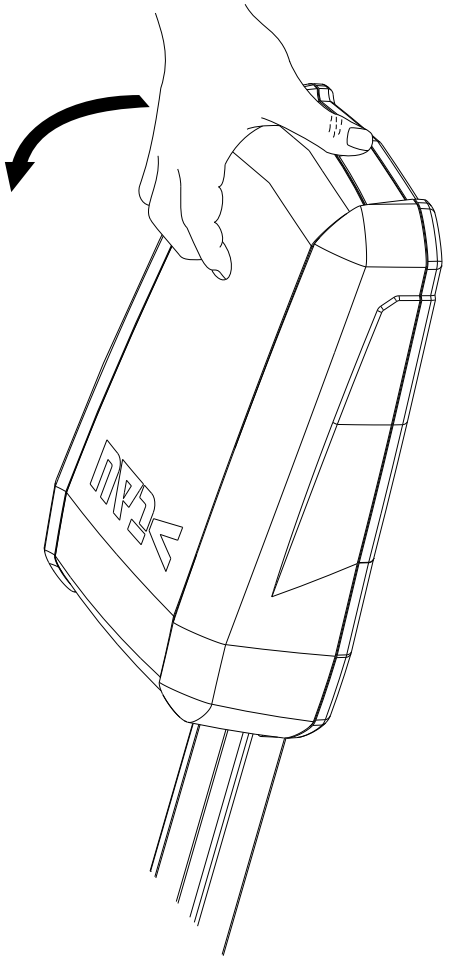

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